**The Perfumer's Apprentice**
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# A method of creation and perfumery
## By Jean Carles (Dec.1961)

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The apprentice perfumer at the beginning of his career is like a ship without a rudder. If he is left to his own devices or badly lead, his discoveries will lack organization and will lead him inevitably to wasteful and ineffectual use of his creative energy.

In my early days on this rugged pathway, I found myself in the presence of tutors who seemed to have disregarded the necessity for basic rules and whose enthusiasm in our fate was of the mildest. Watching how they proceeded with their own work was not particularly enticing: they appeared to believe in a happy-go-lucky way of life, desultorily dipped smelling strips into the available samples of odorous materials, and thus their formulations progressed, small addition by small addition, and not according to some preestablished plan. Thus, in the past, most of the great perfume creations, or rather, of the commercially successful perfumes, were produced almost by chance, sometimes to the unfeigned surprise of their authors! Although such happy occurrences are always possible, a firm belief in them should not be the guiding rule.

Since the trial and error method held no appeal for me, I attempted from the very outset of my career - 50 years ago - actually to understand the whys and wherefores of the fascinating world I entered for better or worse. This is why I feel I may now offer to share whatever experience I've acquired since with my younger colleagues, many of whom still work undirected and create in haphazard fashion, in the expectation of a potential miracle.

In perfumery, however, miracles are few and far between. From the very outset, a perfumer should be able to tell whether a creation stands a chance of becoming a sales success. The technique I eventually worked out has made perfume creation surprisingly easy. Thanks to it, I am never a loss for creating new perfumes.

Although some sort of apology should be in order for the seemingly inordinate conceit of what I have just set forth, all my laboratory colleagues and all those who have come to us for tuition can vouch that I've stated nothing but the truth. Also, I firmly believe that the simplicity and the ready applicability of my method will become fully apparent once I disclose my views on organized creative perfumery.

Perfumery at present is at a crossroads. The number of trained perfumers tends to decrease, since the long apprenticeship required appears an insuperable obstacle to most young people, who cannot afford to wait long enough before earning a living. Such a situation should be

remedied at all costs. While it is not to be expected that originality can be taught or that the potential sales appeal of a novel composition will be apparent to the young perfumer before he has gained the experience which only time will bring, it is nevertheless of prime importance that the apprentice perfumer be given help and guidance for coordinating his first attempts in the field of perfume formulation.

There is no mystery in the way I work. Over the past 35 years, more than 100 students, both French and foreign, have taken courses in perfumery in the company's laboratory at Grasse and have been taught according to the simple method which I had originally devised for myself.

I am here trying to record the result of 50 years of sometimes disappointing, but often most rewarding experiences, in the hope that my young colleagues will find therein new possibilities for future creations and will see their enthusiasm increase tenfold when their efforts are crowned with success: since without enthusiasm there can be no perfumer.

## PERFUMERY AN ART

Actually, what is perfumery and how should be understood?

Perfumery is an art, not a science, as many seem to believe. A scientific background is not necessary for the perfumer; scientific knowledge may even sometimes prove an obstacle to the freedom required in perfume creation. The creative perfumer should use odorous materials in the same way that a painter uses colors and give them opportunity for maximum development and effect, although it is understood that potential reactions such as discoloration within the ultimate formulation and also the stability of the perfume should be given due consideration. This is about the only use the perfumer will be able to make of his scientific training, if any.

The perfumer's only tool is his nose. I was first called "Mr. Nose" in the USA about 20 years ago. But any one of us is a potential Mr. Nose since, in perfumery, there just is no privileged "nose". Anyone may acquire a highly developed sense of smell, as this is merely a matter of practice. A good nose, that is, an excellent olfactory memory, is not sufficient for producing a good perfumer. By the term "a nose" is meant a perfumer who is able to distinguish a pure product from unadulterated product, who can tell lavender 50% from lavender 40%. I myself, in spite of my long experience, am but a beginner in comparison to the old "noses" I met at Grasse at the beginning of my career, and who were able to detect olfactorily the geographical area where a given oil of neroli or of lavender came from.

Olfactory training is of prime importance and should never be neglected or interrupted. Our own perfumers make it a strict rule to test daily their knowledge of perfume materials and this is why a half-hour is set apart for this exercise, which we all perform in a truly competitive spirit.

Let it be emphasized again that no "nose" can be said to be better than another, and that it is merely a question of olfactory memory for which daily training is not only necessary , but indispensable.

## OLFACTORY STUDIES

Thus, the training of a beginner who knows nothing about perfumery should begin with the olfactory study of all odorous materials, both natural and synthetic. In order to facilitate such a study, the beginner will first be given to smell contrasting odors, and later materials belonging to a certain odor "family". Elsewhere are given two tables relating to olfactory studies, according to

such requirements. Learning to smell his smelling strips, to identify and to distinguish from one another all odorous materials, the beginner will soon notice that the odor of the products changes with time, that the rate of evaporation is not the same for all products.

TOP, MIDDLE AND BASE NOTES

Therefore, the next step will be for him to establish *a classification of odorous materials according to their volatility.*

While such a classification could be establish scientifically, the apprentice perfumer will soon attain unexpected proficiency by forgetting any technical information he may have, and by establishing "his" classification for himself, as I had to 40 years ago.

On the smelling strips will first be inscribed the date and time at which the drop of the odorous material was deposited thereon, and later the date and time at which the product on the strip will begin to lose its main characteristic, it's typical odor. When proceding thus, no consideration should be taken of the ultimate off-odors, such as terpenic notes or the like. This technique will soon make it apparent for the student that while some products are very volatile and lacking in tenacity, others are of intermediate volatility and tenacity, and others still are of low volatility and high tenacity.

Such data will then readily be set forth in tabular form, all available all odorous materials being listed under three headings, as shown in the table below.

**Classification According to Volatility**

| Very volatile products<br>Lacking tenacity<br><br>Top Notes | Products of intermediate<br>Volatility and tenacity<br><br>Modifiers of Base Notes | Products of low volatility<br>And high tenacity<br><br>Base Notes |
|---|---|---|
| Amyl acetate | Basil | Methyl Ionone –Ionones |
| Bois de Rose | Terpineol | Absolute Orange flower |
| Linalool | Petitgrain (Paraguay) | Clary sage |
| Phenylethyl acetate | Galbanum | Amyl salicylate |
| Lemon | Verbena | Absolute Jasmin |
| Lavender | Thyme | Benzyl salicylate |
| Bergamot | Geranyl acetaqte | Cedarwood |
| Orange | Juniper | Aldehyde C16 |
| Coriander | Tansy | Aldehyde C18 |
| Tarragon | Phenylethyl alcohol | Sandalwood |
| Laurel nobilis | Geraniol | Artificial Musks |
| Petitgrain from the lemon tree | Absolute Lavender | Absolute Oakmoss |
| Etc. etc. | Citronellal | Vetiver and derivatives |
| | Neroli | Patchouli |
| | Rose Bulgarian | Celery |
| | Ylang | Etc. etc. |
| | Geranium | |
| | Aldehydes C8 C9 C11 C12 | |
| | Cloves | |
| | Etc etc. | |

The student will then have to be taught how to use this table.

As set forth above, I have termed:
very volatile products lacking tenacity
Top notes

products of intermediate volatility and tenacity
Modifiers

products of low volatility and high tenacity
Base notes

The reasons for this choice of terms are the following:
As indicated by their name, the base notes will serve to determine the chief characteristic of the perfume, the sense of which will last hours on end and will be essentially responsible for the success of the perfume, if any.

Anyone even remotely familiar with perfume materials is aware that all products of low volatility and high tenacity such as Vetiver, oak moss, patchouli, the Methyl Ionones and the like, give off a rather unpleasant smell when freshly deposited on the smelling strips but, on the other hand, the scent given off during the subsequent stages of evaporation is excellent. This is the reason for the use of the modifiers of intermediate volatility and tenacity which will serve to change the unpleasant top note of the base products.

Finally, the very volatile top notes, lacking tenacity, will serve to impart to the perfume composition a very pleasant odor on opening the bottle.

For illustrative purposes, let us take as an example the creation of the chypre note.

CREATING A CHYPRE NOTE

1. The "Accord" between bases.
Absolute oak moss is the basic raw material for the chypre note. It belongs to the series of products of low volatility and high tenacity, or base notes. Others of the more common materials belonging to the series are products such as the Ionones and Methyl Ionones, Vetiver, patchouli, Cistus Labdanum and the like. Therefore, we must choose among them the products which will blend with absolute oak moss and impart an original characteristic to our perfume. We shall begin our study of this "Accord" in the following manner.

We shall select a second product belonging to the series of base notes, whichever was the most appropriate for blending with absolute oak moss. In the present case, we shall use, for example, absolute Cistus colorless or a similar product such as ambergris 162B, and we shall prepare a series of "Accords" containing both constituents in the following ratios:

| | | | | | |
|---|---|---|---|---|---|
| Absolute Oakmoss | 9 | 8 | 7 | 6 | 5 |
| Ambergris 162B | 1 | 2 | 3 | 4 | 5 |

We shall not test combinations beyond the five: five ratio, since the following ratios of materials:

| | | | | |
|---|---|---|---|---|
| Absolute Oakmoss | 4 | 3 | 2 | 1 |

| | | | | |
|---|---|---|---|---|
| Ambergris 162B | 6 | 7 | 8 | 9 |

would no longer produce an accord based on oakmoss, but an accord based on ambergris.
We shall then choose between the five "Accords" based on oakmoss and, for example, shall decide on the following:
6 absolute oakmoss
4 ambergris 162B

Since any chypre note should also have a musk like character, we shall at a certain amount of musk ketone or of musk ambrette to the above "Accord". Thus, the base of the desired chypre note will be as follows:
6 Absolute Oakmoss
4 ambergris 162B
1 Musk Ketone

When smelling this blend on the smelling strip, we shall notice that its immediate effect is rather unpleasant, although this will fairly rapidly disappear and be replaced by a pleasant, long-lasting note essentially characteristic of the personality of the ultimate perfume.

II. The Modifiers.
How can we subdue, or, rather, adjust this unpleasant note? We shall immediately find a solution to the problem by studying the table giving the classification of odorous materials according to volatility. Among the products of intermediate volatility and tenacity, we shall find which product, or products, will be best suited for blending with our "Accord" between bases.

We shall choose a floral note, a rose note, for example rose absolute. This rose note will subdue the immediate effect of our "Accord " between bases and make it more pleasant. It will play its part as a modifier of base notes, and this is the reason why we have termed the products of intermediate volatility and tenacity: "modifiers" (of base notes). To the rose note, we shall add a trace of absolute civet, so as to impart a slightly animal shading to the chypre note.
At this stage, the formula is as follows:
modifiers - 3 Absolute Rose
1 Absolute civet, 10% sol.

Bases
6 Absolute Oakmoss
4 Ambergris 162B
1 Musk ketone

III. The Top Note.

Our formula, however, is not yet complete. We must add to it a top note, which will produce the immediate effect when smells on opening the bottle. This note is fairly important, since the potential buyer is easily influenced by it - with or without reason - as in no case can the top note be the characteristic note of the perfume.

This study is far easier than the study of the "Accord" between bases, since the series of very volatile products lacking tenacity contains many odorous products, most of which possess very pleasant notes. The study of the "Accord" between top notes can be carried out as set forth above for base notes, but with much more freedom and fantasy. Combinations, in this case, are countless, and may be left entirely to the perfumer’s initiative.

As with base notes, we may study several "Accords" between two or three notes, or even four. Let us, for example, after testing various combinations, decide upon the use of sweet orange and Bergamot in the following amounts:
4 Sweet Orange
1 Bergamot

Thus, the extremely simple formulation of our chypre note may be written down as follows:

Top Notes (25%)
4 Sweet Orange
1 Bergamot

Modifers (20%)
3 Absolute Rose
1 Absolute Civet, 10% sol.

Bases (55%)
6 Absolute Oakmoss
4 Ambergris 162B
1 Musk Ketone

It is understood that the above is not complete formula, but that it is nearly given for the purpose of illustrating the method set forth in this paper.

IV. *Proportions. Percentages of the three groups of products: bases, modifiers and top notes*.

This percentage is extremely important: it is, for the major part, responsible for the tenacity of the perfume. A perfume containing 20% of bases, 30% of modifiers and 50% of top notes will lack tenacity, since the percentage of bases would be relatively too low as compared with that of the more volatile modifiers and top notes. Therefore, the proportions are selected so as to obtain a balanced evolution during evaporation.

V. **Extension of the above Formulation.**

We shall now examine how this chypre note formula could be completed, or modified. Let us first consider the base notes. We have already realized the "Accord":
absolute oakmoss
ambergris 162 B
musk ketone

We might, for example, add to it Vetiver, which will result in the following "Accord":
absolute oak Moss
ambergris 162 B
Vetiver
musk ketone

And we shall endeavor to find the proper ratios of ingredients, as follows:

| …… | A | B | C | D |
|---|---|---|---|---|
| Absolute Oakmoss | 4 | 6 | 3 | 3 |
| Ambergris 162B | 4 | 3 | 6 | 3 |
| Vetiver Bourbon | 4 | 3 | 3 | 6 |
| Musk Ketone | 1 | 1 | 1 | 1 |

Thus, when studying the above "Accord", the main characteristic will be imparted by oakmoss in experiment B, by ambergris in experiment C and by Vetiver in experiment D.

The student perfumer will also be able to choose between the following "Accords":
(a) absolute oakmoss .
ambergris 162B
patchouli

(b) absolute oak Moss
ambergris 162B
Methyl Ionone

(c) absolute oak Moss
patchouli
Vetiver

(d) absolute oak Moss
Methyl Ionone
Vetiver, etc.

according to his preferences with respect to the main odorous characteristic of the base of the chypre note he wishes to create. Obviously, the use "Accords" could be increased to contain 4, 5 or 6 notes.

It is therefore apparent that this method offers endless possibilities for creating new notes and new perfumes, the perfumer being entirely free to use any odorous material in these "Accords", provided however, that such materials are selected from the series of base notes; such complete freedom in the choice of the starting odorous materials may also be given to the beginner.

Whatever the type of formulation, once we feel the "Accord" between bases is complete and fully satisfactory, we shall have to reconsider our first selection of modifiers. In our first tentative chypre note formula, we might, in place of the rose note, use an Orange note, a Jasmin note, or any other floral note such as Lily of the valley or carnation. Again, top notes should also be similarly adjusted.

For the purpose of illustrating the procedure used for such adjustments, a series of modifications is given below.

**Original Chypre note formulation**
Sweet Orange
Bergamot

absolute Rose
absolute civet

absolute oak Moss
ambergris 162B
musk ketone

**First modification**
sweet Orange
Bergamot

orange flower absolute

Absolute oakmoss
ambergris 162B
absolute Jasmin
musk ketone

**Second modification**
Bergamot
Laurel nobilis

Angelica seeds
juniper berries
Muguet

absolute oak Moss
Vetiver
patchouli
ambergris 162B
aldehyde C 14
absolute Jasmin
musk ketone

**Third modification**
Bergamot
sweet Orange

absolute Rose

absolute oakmoss
Amber liquid
Methyl Ionone
Vetiver
patchouli
absolute Jasmin
musk ketone

**Fourth modification**

Bergamot
Lemon
linalyl acetate

Jasmin 1103
geranium African
orange flower 1103
aldehydes C9, C10, C11

Absolute oak Moss
gardenia Invar
Styrallyl Acetate
Vetiver
ambergris 162B
musk ketone

Thus, modifications of the original formulation may be carried out endlessly; although the resultant blend is always within the scope of chypre notes, an entirely different perfume is

obtained each time. However, this result can be achieved only provided the original formula is written down as suggested above, in the following order:

**Top Notes**
**Modifiers**
**Base Notes**

The specific example given above of the successive steps a perfume formulation shows how any particular type of perfume may be endlessly varied. But the method applies just as well when the perfumer wishes to obtain novel perfumes from a basic formula established to contain "Accords" of which he is especially fond.

**AIDS to metamorphosis**

In this respect, I shall describe an experiment with which our former students are well familiar and which might be called "a brief lesson in perfumery". I first write down, with black pencil, a very simple formula containing, let us say, about eight products and which results in a very acceptable perfume. To this formula, I then add new products, the names of which I write down with a red pencil: thus, a second perfume is produced , *while the proportions and the constituents of the first formulation remain unchanged.* Pursuing this ensuing experiment, I added new series of products to the second formula just obtained, writing down the names with a blue pencil; it is understood that these new products contain top notes, modifiers and base notes. Again, without affecting any change in the products making up the first two formulations, a third perfume is produced , which is also entirely different from the others. ... And the experiment might go on, endlessly, by mere addition of products.

At this point, I feel the subject of accessory products should be mentioned. What are "accessory products."? As far as I'm concerned, products in this series are those which, owing to their typical odor or to their high scenting power, cannot be used in large amounts in an "Accord" between bases or between modifiers, but whose presence in a formulation in more or less traces results in a complete change in the character of the latter and imparts to it a unique cachet. Examples of such products are aldehydes C12 (MNA) and C14, styrallyl acetate, isobutyl quinoline, galbanum, cascarilla and the like. However, although I have just recommended to use such products with moderation, *this is not to be taken as a standing rule.* Aldehyde C12 (MNA), for example, proves to be an exception and it should be known that some products such as geranium, give most successful blends with as much as 50% of it. The advantages which may be derived from the use of accessory products are therefore readily apparent, and it would be pointless to discuss them at greater length in the present paper. But such considerations bring me quite naturally to mention an error, which is quite common in young perfumers.

**"Well rounded" or characterless?**

Our eager would be perfumers seem to feel that they are under the obligation to produce "well rounded" perfumes, in other words, that they should subdue or hide any predominating odorous material. I believe this is actually the worst mistake the perfumer could be guilty of, since this desire for attaining maximum equilibrium in a perfume results in a subdued, characterless finished composition.

One should never believe, before actually experimenting, that a formulation contains an excess of a given product. Such "excess" may quite possibly be due to the lack of some other product. Dominantly effective notes in perfumes should be neither feared nor deliberately avoided. They are a perfumer's own secret, and such "faults" have quite often been responsible for tremendous commercial success. As a matter of fact, when the perfumer feels the amount of a basic product should be increased in a formulation, he should increase this original amount twofold, threefold, and even tenfold. This will afford him the almost unhoped-for opportunity of hitting on an

outstanding "Accord". This amount can always be reduced at a later stage, but the perfumer will know at once what results can be expected from the use of an excess of absolute oakmoss, of Vetiver, of Methyl Ionone and the like in the ultimate formulation, an excess which, sometimes will "pay".

**Sharp contrasts and "fashions"**

At present, to meet with success perfumes should actually "explode" all over, so to speak. Modern perfumery requires contrasts, sharply characterized olfactory values. The perfumer should be totally unprejudiced, should entirely disregard his own tastes. Woe to him if he hates Vetiver, if he cannot stand aldehydes. He should be aware that *there are no incompatibilities in perfumery*, that apparently clashing materials will blend successfully on addition of another product playing the part of a binding agent and making their odorous compatible. The creative perfumer should, above all else, consider the clientele's tastes. The commercial success of the new perfume, of the novel "Accord", is essentially dependent on his original ideas, on his brain waves.

I have often been asked about the question: "what is the latest fashion in perfumery?" There is no fashion in perfumery. Only actual sales success dictate the fashion. A good perfumer is a perfumer who knows how to create a "bestseller".

**The Invaluable Accord**

Great perfumers, like great concert pianists, should make it a strict rule to practice scales, in other words, to study possible "Accords" between cases, since only therefrom can they derive the necessary technique conducive to virtuosity. While this as an overwhelmingly all embracing task, an effort should be made however, to reduce it to less gigantic and more readily accessible proportions. It is not necessary, when studying "Accords" based on chypre notes, for example, to consider the combinations of absolute oakmoss with all existing odorous products. The perfumer will first select the odorous raw materials he will see fit to use in his creation of a chypre note, and is only from such materials that he will study the satisfactory "Accords" between bases.

But, although I have stated at the beginning of this paper that, in perfumery, miracles are few and far between, I must say that this, actually, is where the true miracle emerges.

The very selection a perfumer makes of the raw materials to be used as ingredients in a new formulation is the best of all possible standards for appraising the originality, the initiative and the genius of the creative perfumer, on which the success of the new perfume is entirely dependent. And while it is possible to devise a method which will enable the apprentice perfumer to understand and to acquire some sort of the technique, in perfumery as in many other fields many will be called but few chosen, since the essential qualities which lead to success cannot be taught, any more than can be taught enthusiasm, the joy of living and of creating, and the love for one's calling. These are innate qualities without which there is no great perfumer.

There is not much more I can say about the method I devised for my work, and it is up to my readers to take over where we left off. On the basis of the method I set forth in the previous paper, they may *study "Accords" with products other than absolute oakmoss, that is Accords with Vetiver, patchouli, Sandalwood, Methyl Ionone, etc.*
Unless they find the work deadly dull from the start , they will enjoy many months of systematic research from which they will draw many useful lessons. My own experiments with absolute oakmoss have already passed the 1000 mark, and at least as many, if not more, remain to be carried out, since such investigations are endless.

(End of Part 1)

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(Disclaimer: this article was written in 1961, when attitudes towards women in perfumery and women in general were quite different than what they are now. I hope that readers of this paper can take this into consideration, and passages referring to women can just be read as though the author had referred instead to the consumer in general, both men and women.)

# A Method of Creation in Perfumery
**By Jean Carles (1961)**

## Part 2

### Accords with Methyl Ionone

To facilitate their work, I recommend proceeding as follows: let us assume the study of all possible accords with the natural products listed under the base notes heading of the previously published table (relating to a classification of products with respect to the evaporation rate) is complete. The accords with synthetic or defined products can then be studied. With Methyl Ionone as starting material, for example, one of the more important perfume ingredients, it will be advantageous to work systematically, taking into consideration, where accords are concerned, various suitable combinations of the great variety of constituents offered to the perfumers choice, such as are illustrated in the examples shown.

### The creation of accords

Methyl Ionone + natural products .
- Methyl Ionone .
- Vetiver
- musk ambrette, etc.

Methyl Ionone + natural products + defined products
- Methyl Ionone
- Vetiver
- Eugenol
- musk ketone, etc.

Methyl Ionone + natural products + defined products + synthetic products
- Methyl Ionone
- absolute oakmoss
- Acetivenol or vetiveryl acetate
- Opoponax 21
- musk ketone, etc.

Methyl Ionone + natural products + defined products + synthetic products + bases or specialties
- Methyl Ionone
- absolute orange flowers
- Acetivenol
- Oeillet 25
- Althenol, or Selvione, etc.

In these various accords, the proportions between products will vary according to our young perfumers inspiration and originality, so that in accord already set forth, e.g.

6 absolute oakmoss .
3 ambergris 162B
3 Vetiver bourbon .
1 musk ketone

Might very well become

5 or 4 absolute oakmoss .
3 or 2 ambergris 162B
4 or 6 Vetiver bourbon .
1 musk ketone

The same is true where selection of the products is concerned. When so desiring, the perfumer may vary his choice somewhat less systematically and use whatever materials appeal to his taste. Free scope is given him in this respect, and there is no absolute rule to be followed in the search for accords since any modifications deemed useful , will serve to produce very characteristic novel notes.

The olfactory evaluations of such working formulations will be effected desirably on evaporation because their starting notes might appear somewhat surprising due to the lack of modifier products. The bottles containing these accords will be filed in boxes, and their labels will show the number corresponding to the formula. After completion and adequate selection of the accords, the student perfumer will advantageously practice olfactory evaluations of their constituents. This will prove the best possible olfactory training and will provide a constant checking means of the students familiarity with perfumery raw materials. Thus, any research work undertaken will be greatly facilitated. As already stated, there are no miracles in perfumery, and the perfumer will never be able to identify the accord

Absolute oakmoss
Methyl Ionone
Vetiver
musk ambrette

Unless thoroughly trained to do so. Considerable and very rapid improvement of the students know how will follow, resulting in a wonderful aptitude for identifying the constituents of perfumes he wishes to study.

**Constant practice essential**

Although fully aware of the difficult monotonous work involved, I feel the long years devoted to it are *absolutely necessary*. In no other way can the creative perfumer expects to attain proficiency. Could a musician write a symphony without ever having practiced solfeggio, scales, harmony? It should be emphasized, time and time again, that olfactory studies alone will open the way to true mastery and, hence, to success. Should freakish chance play into your hand and make a sales success of some early attempt do not believe, by any means, that you have become a Master of your Art. Emphatically not. Rest satisfied only when the day comes that you can boast of the number of successful creations to your credit and *feel assured that many more will follow.*

All my colleagues have noted the self complacency of some very green perfumers who have not yet created anything worthwhile, and never will, because they do not work. They take laboratory life easy, smelling strip close to the nose all day long, feeling entirely open to some miraculous

perpetually elusive inspiration. Others are entirely lacking in imagination and never even try to create something of their own, bearing no resemblance whatever to perfumes already on the market; they restrict their efforts to the imitation of successful perfumes, with some not always happy modifications! They apparently delude themselves into the believe that they have created something bearing the mark of their personality.

What a pity that the time of truly original creations-where great craftsman relentlessly pursued their search for novel notes-may seem a thing of the past. This deplorable state of affairs cannot be said to be specific to perfumery since similar erring ways seem to have become the rule in music, where rank imitations are even more frequent. Young . "composers" appear to seek inspiration from successful tunes, distorting them to suit their purpose, modifying their rhythm, and seem convinced that their amateur music will become as great a commercial success as the original. The same is true at present in our industry. It is in this respect that, in my opinion, there is actually no particular fashion in perfumery; it is the fact that *the perfumes with sales appeal derive for the major part from perfumes dating back 30 years or more* , and still foremost in the bestseller list. It could very easily be demonstrated that many of the more recently successful perfumes fall into this category. Obviously, young perfumers with a good "nose" find it much easier to seek inspiration from some acknowledged good perfume than to devote themselves to a search for novel original notes.

**Creation and imitation** .

Let our future perfumers meditate upon the subject and discover the zest of true creative effort. Means for such achievements have been made available to them. Let them persevere in their task, in spite of disappointing results, even if such efforts may seem unrewarding at first. Perfume creating is far from easy. But what pride once they have created a perfume they can call entirely their own! Only then will they understand that it is *better to be imitated than to imitate.* There lies the sign of success.

It should also be said that very few, among the public at large, are able to detect the similarity between copy and original perfume. This undoubtedly provides an excuse and encouragement for imitators. This is most unfortunate for French perfumery, an art so typical of our people and in which we can justifiably take some pride since it has greatly contributed to the worldwide reputation of our country. But this reputation is jeopardized by a lack of originality against which steps must be taken with a will for keeping off the beaten track. While our customers are largely responsible for the present state of affairs-always requesting X. type or Y type perfumes - it is up to us, however, to persuade them to abandon this policy and to turn to entirely new notes. Thus, the market will no longer be crowded with perfumes of more or less similar fragrance, but will at last offer new, original, sometimes disconcerting notes maybe, but notes , which will renovate entirely this wonderful art of ours for the greatest benefit of French perfumery.

This being understood, the task of our young perfumers should be facilitated. Therefore, I advise them once again to establish for each floral or fancy note a table corresponding to said note and keeping in tabular form the top notes , modifiers and base notes compatible with the perfume they wish to create. Such tables are very valuable memoranda.

Having undertaken a study of chypre notes in part one, I am now giving, as an example, a table relating to such notes; although incomplete, it is illustrative of the method and can be used by students as a starting basis for a similar table of their own, established according to their personal tastes, since I have limited my own choice to substantially conventional materials.

This table includes a number of accessory products , which will be used eventually for varying the chypre note, according to the inspiration of the student perfumer. When I mentioned "accessory products" I referred to a wide variety of products from which can be selected the material which will usefully change the character of a basic accord, the constituents of which enter in high proportions in the overall perfume formulation , but which, owing to its character, cannot be used in large amounts. As is generally the case, there are exceptions to this rule, as previously illustrated. But no one would even consider formulating a basic accord proper, that is in accord between constituents at concentrations of the same order of magnitude, by using, for example, absolute oak moss in association with caraway, cascarilla, aldehyde C 14 or Galbanum. But, when used in reasonable amounts, the latter products can, as the case may be, become extremely useful for the purpose of imparting a specific character to creations. As a matter of fact, most accessory products belong to the series of modifier products, except a number of materials such as celery, cistus, aldehyde C 14 etc. that come under the base notes heading. To this table any available specialties that are apt to impart interesting modifications may be added.

**Chypre**

| **Top Notes** | **Modifiers** | **Base Notes** |
|---|---|---|
| Sweet orange | Absolute rose | Absolute oak Moss |
| Bergamot | Bulgarian rose | Patchouli |
| Linalyl acetate | geranium | Vetiver and derivatives |
| Geranyl acetate | Neroli, petitgrain | Acetivenol |
| Rhodol acetate | Absolute civet, 10% solution | Sandalwood |
| Geraniol | Absolute orange flowers | Absolute cistus colorless |
| Linalool | Rhodol | Ambergris 162B |
| Lemon | Rhodinol | Amber Liquid |
| Bois de rose | Phenyl ethyl alcohol | Methyl Eugenol |
| Etc. | Phenyl ethyl acetate | Olibanum |
| | Cinnamic alcohol | Orris concrete |
| | Pine, maritime, Sylvester | Ionones, Methyl ionones |
| | Styrax | Clary sage |
| | Coriander | Absolute ambrette |
| | Argeol | Absolute jasmine |
| | Ylangs | Ambrette oil |
| | Cassia | Musks |
| | Cinnamon | Etc. |
| | Uguet 133 or Invar | |
| | Jasmin 1103 | |
| | Cloves, Eugenol, Isoeugenol | |
| | Etc. | |

| **Accessory products** | **Bases or specialties** |
|---|---|
| Caraway | Althenol, Selvone or Corona |
| Galbanum | Bouvardia 198 |
| Costus | Corional |
| Juniper berries | Cuir de Russie 18-167 |
| Laurel noble | Daltonia 1096 |
| Angelica seeds | Tobacco flower |
| Hyssop | Myrisia |
| Aldehydes C9, C10,C11,C12,C14 | Mousse 32, Mousse 1026 etc. |
| Celery etc. | Mousse Sylvestre Mousse de Chypre |
| | Mousse Poivree Mousse JD Base Mousse R |

| | |
|---|---|
| | Pimenal 44 etc. |

The table given above relates to conventional chypre perfumes, but the utilisable constituents may be varied ad infinitum, provided the standard chypre characteristics are maintained. It will be noted that coumarin was not mentioned among the base notes tabulated above; this is an intentional omission, to prevent the student from wandering away from the chypre note and creating a fougere type perfume. Lavender was omitted from the head notes for the same reason.

While on the subject, it should be mentioned that students in perfumery are very seldom capable of explaining clearly the difference there is in the formulation of conventional chypre, fougere,foin and trefle notes. The chief characteristics of such notes are summarized below for the purpose of preventing potential errors.

| **Chypre** | **Fougere** | **Foin** | **Trefle** |
|---|---|---|---|
| Bergamot<br>sweet orange | Bergamot<br>Lavender | Bergamot | Bergamot |
| Rose | Geranium | Geranium | Anisic aldehyde<br>Eugenol |
| Absolute oak Moss<br>Amber<br>misc. musks | Absolute oak Moss<br>Vetiver<br>absolute Tonka beans<br>coumarin | Absolute oak Moss<br>Patchouli<br>Amyl salicylate<br>Coumarin | Absolute oak Moss<br>Amyl salicylate<br>Patchouli<br>musk ambrette<br>Coumarin |

It is apparent that the above working formulation is most incomplete, but it is a sound starting basis for the study of such notes and will give full scope to the students imagination and fantasy. The distinction between the four notes being fully established, we shall proceed with our study of the chypre note.

In the previously published paper only a few simple accords were given with an absolute oak moss basis. For the purpose of facilitating research work, a number of accords selected by our own students are given by way of examples on the next page. Although they are not particularly outstanding, such accords will permit a better understanding of the procedure previously set forth and can be used as a starting basis for fancy chypre notes, since conventional chypre perfumes were already discussed.

We shall proceed systematically, as previously, successively studying accords with 2, 3 and 4 products in addition to the artificial musk that cannot be dispensed with in any chypre note. It will be readily apparent that some of the accords given in the table are economically impractical because of the high cost of the various absolutes, but they should be mentioned so that their effect can be studied.

Quite obviously, such accords are endless. But many can be eliminated and the students choice limited to those he considers really worthwhile. In the above examples, we have interrupted the illustration of the method with accords containing four products, but the study could be carried on with 5, 6, 7 products or more with highly surprising and pleasant results.

How should one proceed? As far as I am concerned, I always carry out such tests volumetrically, in milliliters, using a graduated test tube, all products except the artificial musk being in 10%

alcohol solution; thus, I can work very rapidly. Since the musks used are not soluble at 10% concentration, they are used, exceptionally, in 1% alcohol solution; thus, when actually testing the formulation indicating musk ketone: 1, one should read; 10. This procedure permits very rapid evaluation of the olfactory character of an accord.

**Accords for Fantasy Chypres**

| Simple Accords with Two Products | | |
|---|---|---|
| 8 Absolute oak Moss | | 6 Absolute oak Moss |
| 2 concrete ambrette seeds | | 4 absolute orange flowers |
| 1 musk ketone | | 1 musk ketone |
| | | |
| 8 absolute oak Moss | | 7 absolute oak Moss |
| 2 absolute rose | | 3 absolute violet leaves |
| 1 musk ketone | | 1 musk ketone |
| | | |
| 8 7 6 absolute oak Moss | | 6 4 absolute oak Moss |
| 2 3 4 patchouli | | 4 5 Vetiver bourbon |
| 1 1 1 musk ketone | | 1 1 musk ketone or ambrette |
| | | |
| 9 8 7 absolute oak Moss | | 7 absolute oak Moss |
| 1 2 3 Irisantheme | | 3 Absolute Cistus colorless |
| 1 1 1 musk ketone | | 1 musk ketone |
| | | |
| Accords with 3 Products | | |
| 6 3 absolute oak Moss | | 6 absolute oak Moss |
| 2 3 patchouli | | 2 patchouli |
| 2 3 absolute orange flowers | | 2 absolute jasmine |
| 1 1 musk ketone | | 1 musk ketone |
| | | |
| 6 3 Absolute Oakmoss | | |
| 2 3 absolute rose | | |
| 2 3 patchouli | | |
| 1 1 musk ketone | | |
| | | |
| 3 absolute oak Moss | | 3 absolute oak Moss |
| 3 Vetiver | | 3 Vetiver |
| 3 Absolute Jasmin | | 3 Absolute Orange Flowers to the |
| 1 Musk ketone | | 1 Musk ketone |
| | | |
| 6 absolute oak Moss | | 3 absolute oak Moss |
| 2 Vetiver | | 3 Vetiver |
| 3 Absolute rose | | 3 concrete ambrette seeds |
| 1 Musk ketone | | 1 Musk ketone |
| | | |
| 3 absolute oak Moss | | 3 absolute oak Moss |
| 3 Sandalwood | | 3 Irisantheme |
| 3 absolute orange flowers | | 3 absolute orange flowers |
| 1 Musk ketone | | 1 Musk ketone |
| | | |
| 3 absolute oak Moss | | 3 absolute oak Moss |
| 3 absolute Jasmin | | 3 Eugenol |
| 3 Irisantheme | | 3 absolute jasmine |

| | | |
|---|---|---|
| 1 Musk ketone | | 1 Musk ketone |
| | | |
| 3 absolute oak Moss | | 3 absolute oak Moss |
| 3 Irisantheme | | 3 Irisantheme |
| 3 absolute rose | | 3 Eugenol |
| 1 Musk ketone | | 1 Musk ketone |
| | | |
| | | |
| Accords with four products | | |
| 3 absolute oak Moss | | 3 absolute oak Moss |
| 3 patchouli | | 3 patchouli |
| 3 Vetiver | | 3 Vetiver |
| 3 absolute jasmine | | 3 absolute rose |
| 1 Musk ketone | | 1 Musk ketone |
| | | |
| 3 absolute oak Moss | | 3 absolute oak Moss |
| 3 Vetiver | | 3 patchouli |
| 3 Sandalwood | | 3 Sandalwood |
| 3 absolute orange flowers | | 3 absolute jasmine |
| 1 Musk ketone | | 1 Musk ketone |
| | | |
| 3 absolute oak Moss | | 3 absolute oak Moss |
| 3 Irisantheme | | 3 Irisantheme |
| 3 Vetiver | | 3 patchouli |
| 3 absolute orange flowers | | 3 absolute jasmine |
| 1 Musk ketone | | 1 Musk ketone |
| | | |
| 3 absolute oak Moss | | 6 absolute oak Moss |
| 3 patchouli | | 2 Absolute cistus colorless |
| 3 eugenol | | 2 Irisantheme |
| 3 Absolute Rose | | 2 Vetiver |
| 1 Musk ketone | | 1 Musk ketone |
| | | |
| 3 absolute oak Moss | | 3 absolute oak Moss |
| 3 Vetiver | | 3 absolute orange flowers |
| 3 absolute jasmine | | 3 patchouli |
| 3 Absolute cistus colorless | | 3 Vetiver |
| 1 Musk ketone or ambrette | | 1 Musk ketone or ambrette |

**Space spray testing** .

How should the actual smelling test be carried out? Although such a question may seem quite bizarre, it is nevertheless most important. Above all, do not use a smelling strip. Why? Because when smelling a perfume or some accord from the smelling strip, one does not in the least obtain even an approximation of the *true scent* of the perfume. The following anecdote will explain why I abandoned the use of the smelling strip for appraising new perfumes. I happened to be visiting Lisbon, some 30 years ago, and was lunching out with our agent and his wife. I felt intrigued by the excellent scent of her perfume and finally asked for its name since I had no recollection of it. She laughed and answered this was a sample of one of my latest creations I had given her husband during my last visit. Paradoxically, I had not recognized "my own" perfume, being unfamiliar with its true full scent since I had always appraised it from the smelling strip. This served to make me understand clearly that the smelling strip can in no way be used for effecting an overall evaluation of the perfume's true full scent. I became quite concerned with the problem

and, when backing in Grasse, inquired about the sales of the product I had just discovered. .... And found out that sales orders represented substantial amounts. From this time on, I gave up using smelling strips for the evaluation of my own creations and henceforth used *vaporization.*

.How should one vaporize a perfume undergoing olfactory evaluation? Many suitable devices are available, but I obtain the best results with a very simple cheap spraying device of the type commonly used by artists for spraying a very thin coating of clear varnish on charcoal or sanguine drawings. Thus, the perfume is vaporized for 5 to 7 seconds, in the center of a room, care being taken not to direct the perfume cloud onto the walls. The room has been closed, and the experimenter returns to it after 2 or 3 minutes and can then effect olfactory evaluation of the resulting scented atmosphere. *The immediate and precise sensation produced by the character of the perfume and especially by its fully developed scent*, as it will be released under actual use conditions, is thus obtained; this achievement would not have been possible with a smelling strip. In addition to this significant advantage, the perfumer will gain precious time with such tests, in contrast to the long hours necessary for full development of the perfume on the smelling strip , and which will have to elapse before a perfumer can properly appraise the main character of his new creation. Such vaporization produces the true fully developed scent, without any possible error, and permits immediate rearrangement of working formulas. A large number of olfactory evaluations are thus made possible, in contrast to the slow results obtained with the smelling strip. I have found this procedure fully satisfactory for almost 35 years.

*On the other hand, it goes without saying that the smelling strip is indispensable and irreplaceable for the olfactory evaluation of perfumery brought materials.*

This means of carrying out olfactory evaluations also has another advantage: I found out that certain perfumes offered to a potential buyer were sometimes rejected when smelled from a smelling strip , whereas vaporization of the same perfumes resulted in a sale. I wish to insist that student perfumers carry out this experiment when evaluating their creations. Surprising results will probably ensue, and many will be disappointed by perfumes they had rated as good when using a smelling strip and which appear rather indifferent on vaporization; but the contrary will also occur.

**Perfumes and sales appeal**

It should always be kept in mind that it is the true fully developed scent of a perfume , which is responsible for its sales appeal and which is the best of all advertising means for your creations. It is because of it that a woman purchases of perfume. As a matter of fact, *perfumes are not selected but adopted by women* various reasons can be found for this attitude. One of the chief reasons , a woman buys a specific perfume is because it is "all the rage", being the latest creation of the fashionable couturier, and because, thus, she will be able to answer any inquiry with "it is X's new perfume!". But should no one react to her new perfume, should it be disregarded by her husband, her friends or her hairdresser, then she will promptly discarded for good. If, in contrast, from the day of the purchase, all complement her on her good taste in asked for the name of the perfume, she will feel flattered and will make it hers. Women will also adopt a perfume they have smelled on a friend, having been able to appreciate its scented trail, or a perfume which has long been held in high repute.

I have seen women refuse a high-grade perfume offered to them by the sales girl at the perfumery counter of a department store, and returned to purchase the same perfume a few minutes later. What are the reasons for such sudden change of opinion?
1. They may have evaluated the perfume on opening the perfume bottle. This was a gross error, since they could only smelled the very volatile top notes , which permitted in no way to detect the principal character of the perfume and: they remained ignorant of its fully developed scent.

2. They may have evaluated the perfume by casting a drop onto their ungloved hand, just as they would have tested a cream or lipstick, omitting to take into account the order due to their skin , or that imparted by the glove. This too rapid evaluation, carried out under poor conditions, has not made possible the perception of the scent characteristic of the perfume.

3. They have smelled the perfume on some friend, and this has settled their choice, having appreciated its true character. Such cases are very frequent.

**Limitations of "panel" testing**

As a matter of fact, I have often remarked how in capable woman was to pass judgment on the perfume. Early in my career, I used to make the gross mistake of giving samples of my newly created perfumes to women chosen among the more fashionable and clever of my friends and of requesting their advice on the olfactory value of my gift. As a result, I often had to listen to utterly senseless criticism. Faced by such incompetence , I decided to stop asking for advice on the value of my creations. I merely offered a bottle of my new perfume and quietly waited for any reactions that might come unsolicited. If, after a few days, nothing came of it, I decided my perfume was a "Frost" and merely wrote it off. But if, on the contrary, as soon as the perfume was "tried on", I was told, "my dear, this perfume is wonderful, sensational, they are all asking for its name" then I felt sure my perfume was good and could become a success. And 99 times out of 100 it was a success. *Vox populi*. This is the reason I am entirely opposed to panel tests , which are so extensively used in the United States when a perfume is to be evaluated. The panel tests, just as the smelling strip, should be used only for the evaluation of raw materials. My conclusion will be the following: never ask a woman for her opinion on the perfume you have just created. She will feel embarrassed and you will lead yourself open to great disappointments. At the early stages of my career, I was full of great illusions and firmly believed all my wishes would come true. Far too often was I sure of having created wonders , which, in fact, were nothing to speak of. The only sure guide is vaporization, which will provide true information on the olfactory value of perfumes.

**New horizons**

I hope the few illustrative examples given above will help my young colleagues to find an answer to their questions, and make them the more eager to go on with their research without restricting their work to mere imitations , which will not help them progress rapidly in their chosen art of creative perfumery. I have set forth some of the discoveries I made in the course of my long career. My young friends will arrive at the same discoveries by dint of hard work and olfactory research and will, every time, feel elevated at finding new horizons for future creative work; such discoveries will sustain their young enthusiasm which will make of them excellent creative perfumers.

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# A Method of Creation in Perfumery
**By Jean Carles (1961)**

**Part 3a**

In the previous parts of this paper I've shown how beginners in the art of perfumery may undertake their apprenticeship in a simple and lively manner , which makes it possible for them to formulate well-balanced basic "Accords" at an early stage in their studies, and to modify such Accords with materials selected according to their own taste and imagination.

In the present paper, I intend to consider the problems involved in the search for modifiers and top notes. Of a more fugitive nature than base notes, these are indeed the materials that offer full scope to a perfumer's fancy and make it possible for him to impart to perfume formulations the original, unexpected and zestful character that will arouse the interest of potential users and eventually direct their choice.

It is quite apparent that here, again, all conceivable combinations are possible, or almost possible, since in perfumery, as in many other fields, everything is but a matter of discrimination, of selection , and, essentially, of proportions. Since the study of top notes and of modifiers will lead us to define more accurately the conditions under which floral notes and fast evaporating essential oils or chemicals should be used, we shall not limit our study to a discussion of perfumes alone, but shall also consider the broader aspects of the formulation of Colognes, which are more commonly and more readily used and possess the advantage of being less expensive.

**Research into Modifiers**

It is no easy matter to set forth absolute rules when dealing with a field where freedom of expression and individual preferences are the major factors contributing to the success of creations. This field, however, has certain limitations that are readily defined, easy to comply with and that merely have to be kept in mind to maintain control over immoderate flights of imagination. Indeed, while modifiers may have a rather noticeable effect on basic Accords, they should not modify the main character of the perfume. They should affect the transition between the top notes and the basic Accords. Therefore, it should be remembered that they should not exceed 20 to 25% of the total weight of the composition, since an excess could be detrimental to the so carefully established basic Accord and would severely interfere with its lasting character.

Within the above limitations, the use of such materials is unrestricted by absolute rules. One may employ either currently available materials such as essential oils or perfumery chemicals, or more elaborate products such as synthetic flower type perfumes, e.g. Jasmine, lilac, Lily of the Valley, Rose, Carnation, and the like, or any other type of compound, used singly or in combination. Freedom of choice. Freedom of expression.

However, while it may seem both difficult and undesirable to direct any research in this field into set channels, a suitable knowledge of the conditions under which the various classes of materials available can be used will greatly helped the perfumer's choice.

In this connection, we should open a parenthesis with respect to synthetic perfumes* (the term " synthetic perfume" is here intended to refer to a compounded perfumes such as Rose, Jasmine

or Muguet "synth." - and not of course to a straightforward perfumery synthetic - Editor, S.P.C Year Book.) *A given synthetic perfume may, according to circumstances, serve as a modifier or as base note.* The part played by it is dependent on the amount used in the formulation. Indeed: a synthetic perfume is a complete perfume, that is, containing its own top notes, modifiers and characteristic base notes. Therefore, and it is desired to impart a floral character too perfume, the synthetic Lily of the Valley, Lilac, Hyacinth, Rose or other perfumes selected should be used in large amounts in the formulation. On the other hand, when the same products are meant to play the role of modifiers, they should be present in more reduced amounts. The following examples are given for illustrative purposes.

This is a very simple suggestion for a formulation wherein the fundamental or basic character of the perfume is provided by Lilac and Muguet synthetic perfumes.

*Top note* Bergamot .

*Modifiers*
geranium from Grasse
Ylang Nossi-Be extra
aldehyde C12 MNA

*Base note*
Lilac 183
Muguet 113 or Muguet Invar JD
aldehyde C14
absolute Jasmine .
Musk ambrette

In the next formulation, Muguet Invar or Muguet 113 or used in the capacity of modifiers:

*Top note* Bergamot

*Modifiers*
absolute Rose or synthetic Rose .
Ylang Nossi-Be extra
Muguet Invar or Muguet 113

*Base note*
Althenol or Selvone
Acetivenol or vetiveryl acetate
oil Sandalwood extra
absolute Jasmine
musk ambrette

A somewhat special case one should mention here is that of Rose type synthetic perfumes. Because of the relatively volatile components used in such formulations, they are seldom employed as base notes , but play the role of modifiers in fancy perfumes.

It is apparent that any simple notes of suitable character for the desired perfume may be used as modifiers; but a large variety of tones can also be obtained by using synthetic perfumes in combination, as in the following examples:

a) Jasmin 1103
Fleur d'Oranger 1103
b) Oeillet 25
Rose d'Orient 2644
c) Jasmin 1103
Muguet Invar
d) Muguet Invar

rose de Mai 68

e) Fleur d'Oranger 1103
Muguet 113

f) Jasmin 1103
Lilac 183 etc. etc

Either one of these products being used in predominant proportion, or both products being used in equal parts.

It goes without saying that to such combinations of synthetic perfumes may be added various products selected from the group of modifiers tabulated under the appropriate heading in the table set forth previously, where perfumery raw materials are listed according to their rate of evaporation. (Part I)

**Research into a head notes** .

One will proceed as described with respect to basic Accords, with the advantage that the field of investigation is fairly large and that the fancy of each perfumer is given still wider scope since interesting results are most generally obtained. The very great ease with which raw materials belonging to this class or used is due to the fact that such products possess a fairly generally pleasant note, and are practically always mutually compatible. Hence, disastrous combinations are practically impossible!

One will merely refer to the table mentioned above, where perfumery materials are tabulated according to evaporation rates, to find suitable constituents for an extremely large variety of top notes. It is unnecessary to devote too much effort to the formulation of a top Accord compatible with the modifiers and the basic Accord already selected. The responsibility for such liaison work devolves on the modifier components. In this respect, the various tests effected with a satisfactorily established formulation show that the modifier components can be changed as desired , while maintaining the original top and basic Accords, and that most pleasant results will often be obtained thereby. Examples of such modifications were given in part one of the series of articles.

For illustrative purposes, some examples of studies for top notes are given in tabular form in the adjacent columns. (Below)

**Combinations studied as top notes**

*Accords with two products*

| | |
|---|---|
| 6 Lemon<br>4 Lavender | 6 Sweet Orange<br>4 Petitgrain fr. Paraguay |
| 8 Sweet Orange<br>2 Marjoram | 8 Sweet Orange<br>2 Tarragon |
| 6 Lavender<br>4 Petitgrain fr. Paraguay | 4 6 Lavender<br>6 4 Tangerine |
| 5 6 Sweet Orange<br>5 4 Lavender | 6 7 Coriander<br>4 3 Sweet Orange |
| 8 5 Bergamot<br>2 5 Sweet Fennel | 7 2 Hyssop<br>3 8 Coriander |
| 7 3 4 Hyssop<br>3 7 6 Verbena | 8 7 3 Juniper berries<br>2 3 7 Bay |
| 6 4 1 Bois de Rose | 9 4 3 Bergamot |

| | |
|---|---|
| 4 6 9 Juniper berries | 1 6 7 Tarragon |
| 7 4 1 Bergamot<br>3 6 9 Tangerine | 8 5 2 6 Bergamot<br>2 5 8 4 Basil |
| 8 7 6 4 Lavender<br>2 3 4 6 Bergamot | 8 7 4 2 Basil<br>2 3 6 8 Verbena |
| 6 5 4 3 Coriander<br>4 5 6 7 Tangerine | Etc. |

*Accords with three products*

| | |
|---|---|
| 2 Lavender<br>2 Sweet Orange<br>4 Bergamot | 6 Lemon<br>3 Lavender<br>3 Bergamot |
| 3 Lemon<br>6 Tangerine<br>3 Petit gran fr. Paraguay | 3 Lemon<br>3 Bergamot<br>3 Bois de rose |
| 3 6 3 3 Bergamot<br>3 3 6 3 Basil<br>3 3 3 6 Bois de Rose | 3 6 3 3 Bergamot<br>3 3 6 3 Basil<br>3 3 3 6 Coriander |
| 3 6 3 3 Bergamot<br>3 3 6 3 Basil<br>3 3 3 6 Geranium | 3 6 3 3 Bergamot<br>3 3 6 3 Basil<br>3 3 3 6 Neroli etc. |

*Accords with four products*

| | |
|---|---|
| 2 Lemon<br>2 Neroli<br>6 Bergamot<br>2 Verbena | 2 Bergamot<br>2 Lemon<br>6 Sweet Orange<br>2 Tangerine |
| 6 Lavender<br>2 Petitgrain fr. Paraguay<br>2 bois de Rose<br>2 Sweet Orange | 2 Lemon<br>2 Neroli<br>6 Bergamot<br>2 Verbena |
| 2 Bergamot<br>2 Lemon<br>6 Verbena<br>2 Lavender | 3 6 Lavender<br>3 2 Bergamot<br>3 2 Sweet Orange<br>3 2 Geranium, etc. |

In some cases, the percentage of head products will be reduced when the modifiers have a sufficiently powerful odor to impart an interesting and pleasant aroma on opening the bottle. Such is fairly often the case when the overall effect of the modifier components is of a satisfactorily rising character, as in the following examples:

*Top note* Lavender 40%

*Modifiers* neroli bigarade petals extra
Ylang Ylang Nossi-Be extra

Lavender alone will be a suitable top note, and the perfume will exhibit increased lasting properties because of the reduced ratio of highly volatile head products.

The few examples set forth above are sufficient to show the extent to which the combinations of compounds may be varied, and to make when fully understand the great importance of top notes in perfumery. Indeed, the most volatile perfumery materials such as citrus oils or Lavender's, for example, are the first perfume components perceived by the users olfactory mucosa and often those components that are responsible for holding the attention of the potential purchaser, the effect produced being all the more favorable as fresh smelling and relatively evanescent materials are used.

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# A method of creation and perfumery
## By Jean Carles (Dec.1961)

**This series of articles was published in the 1968 yearbook issue of the publication "Soap, Perfumery & Cosmetics" and is available at many libraries across the country. To find a library near you, search on www.worldcat.org.**

### COLOGNES

Our present topic leads us quite naturally to discuss the formulation of colognes which, predominantly, consist of highly volatile top notes.

Indeed, conventional colognes are predominantly toilet goods that should have an odor lacking in tenacity, either because said odor should be just sufficient to add to the overall pleasant feeling of cleanliness, or because it should not detrimentally affect one's regular perfume. It is understood that modifiers and base notes may be added to cologne formulations, for the purpose of imparting more lasting properties to such compositions, but, nevertheless, such materials should always be used with moderation in colognes.

The main constituents used in the formulation of colognes are set forth in tabular form below, the table being only given for illustrative purposes and as an indication of the work that can be undertaken by any student in perfumery.

**Raw Materials for Cologne Formulations**

| Top Notes | Modifiers | Base Notes |
|---|---|---|
| Bois de rose | Basil | Clary sage |
| Linalool | Petitgrain, ex Bergamot-tree | Ionones |
| Tangerine | *Petitgrain, fr. Paraguay* | Methyl ionones |
| Bitter Orange | *Petitgrain, ex Lemon-tree* | Orris concrete |
| Citron | Petitgrain, ex Tangerine tree | Sandalwood |
| *Lemon* | *Verbena* | Cinnamon |
| | | Cassia |
| *Lavenders* | *Petitgrain bigarade* | Nerolin crystals |
| *Bergamot* | Tansy | Yara-Yara |
| Lavandin | *Petitgrain fr. Grasse* | Benzyl salicylate |
| Coriander | *Geraniums, African and Bourbon* | Resinoid No. 1 Benzoin |
| *Sweet Orange* | Hyssop | Resinoid No. 1 Balsam Tolu |
| Sweet fennel | Lemongrass | Resinoid No. 1 Balsam Peru |
| Bitter fennel | Cloves Bourbon | Bromstyrol |
| Citral | Pine | Methyl naphthyl ketone |

| | | |
|---|---|---|
| Tarragon<br>Lime<br>Marjoram<br>Linalyl acetate<br>Terpinyl acetate<br>Etc. etc. | Wild Thyme<br>*Neroli bigarade petals*<br>Isoeugenol<br>Methyl cinnamate<br>Ylang-Ylang<br>Ethyl cinnamate<br>Methyl iso eugenol<br>Methyleugenol<br>*Rosemary*<br>Phixia (Hydroxycitronellal)<br>Aldehydes C9, C10, C11, C12<br>Methylnonylacetaldehyde (Aldehyde C12 MNA)<br>Bay<br>Thyme<br>Absolute Orange Flowers<br>Phenylethyl alcohol<br>Geranyl acetate<br>Geraniol<br>Citronellol<br>Citronellal<br>Cinnamyl acetate<br>Etc. etc. | *Artificial Musks*<br>Coumarin<br>Vanillin<br>Absolute Tonka Beans<br>Vetiveryl acetate<br>Vetiver (Java and bourbon)<br>Acetivenol<br>Absolute Cistus Labdanum (colorless)<br>Olibanum<br>Opoponax<br>Argeol<br>Indolene<br>Hibiscolide<br>Lactone MC15<br>Etc. etc. |

In spite of the pleasant note of most constituents, it is difficult to create a "good" Cologne, that is, a cologne that will have sales appeal. Again - I beg to be forgiven, but cannot help repeating myself! - the personal touch of the perfumer creator will be determining. A perfumer's technical know-how and olfactory memory will serve to produce a well-balanced formulation. But the perfumer's fancy, his sense of humor sometimes, his desire to promote some flash of interest and amusement , and his deep rooted love for his art will lead him more safely than any so-called recipe to hit on an immediately popular formulation... popularity being the mark of a "good" Cologne.

Types of accord with 2, 3 and four products are given. They serve only as an indication, and as a basis for more elaborate studies. It goes without saying that top notes and modifiers may be included in the accords set forth and, thus, increase the already large scope possibilities offered in this field.

The last accord set forth leads us to a much more rapid method of research that makes it possible to dispense with the long tedious search for accords, which, in colognes, seem to be inexhaustible!

**Cologne Formulation**: *Accords with Two Products*

| | | | | |
|---|---|---|---|---|
| 7<br>3 | Bergamot<br>Lemon | | 9<br>1 | Bergamot<br>Lavender |
| | | | | |
| 7<br>3 | Bergamot<br>Neroli bigarade petals | | 6<br>4 | Bergamot<br>Petigrain fr. Grasse |
| | | | | |
| 9<br>1 | Bergamot<br>Wild Thyme | | 9<br>1 | Bergamot<br>Argeol |
| | | | | |

| | | | | |
|---|---|---|---|---|
| 4<br>6 | Lemon<br>Bois de Rose | | 9<br>1 | Sweet Orange<br>Neroli bigarade petals |
| | | | | |
| 9<br>1 | Neroli bigarade petals<br>Verbena | | 4 7<br>6 3 | Bergamot<br>Verbena |
| | | | | |
| 5 9<br>5 1 | Lemon<br>Sweet Orange | | Etc. | |

**Cologne Formulation**: *Accords with Three Products*

| | | | | |
|---|---|---|---|---|
| 6<br>3<br>3 | Bergamot<br>Sweet Orange<br>Lavender | | 6<br>3<br>3 | Lemon<br>Sweet Orange<br>Petitgrain fr. France |
| | | | | |
| 6<br>3<br>3 | Lemon<br>Lavender<br>Sweet Orange | | 6<br>3<br>3 | Lemon<br>Tangerine<br>Petitgrain fr. Grasse |
| | | | | |
| 6 3 3<br>3 6 3<br>3 3 6 | Bergamot<br>Lemon<br>Sweet Orange | | Etc. | |

**Cologne Formulation**: *Accords with Four Products*

| | | | | |
|---|---|---|---|---|
| 6<br>2<br>2<br>2 | Lemon<br>Lavender<br>Bergamot<br>Neroli bigarade petals | | 6<br>2<br>2<br>2 | Lemon<br>Petitgrain fr. Grasse<br>Bergamot<br>Bois de Rose |
| | | | | |
| 2<br>6<br>2<br>2 | Petitgrain fr. Grasse<br>Geranium African<br>Bois de Rose<br>Verbena | | 3<br>3<br>3<br>3 | Bergamot<br>Lavender<br>Sweet Orange<br>Geranium African |
| | | | | |
| 2<br>2<br>6<br>2 | Bergamot<br>Lemon<br>Sweet Orange<br>Tangerine | | 2<br>6<br>2<br>2 | Bergamot<br>Lemon<br>Lavender<br>Bois de Rose |
| | | | | |
| 2 6<br>2 2<br>2 2<br>6 2 | Bergamot<br>Lemon<br>Sweet Orange<br>Lavender | | 2 2<br>6 2<br>2 2<br>2 6 | Bergamot<br>Lemon<br>Sweet Orange<br>Bois de rose, etc. |

*Accords with five Products*

| | | |
|---|---|---|
| 6 2 2<br>2 2 2<br>2 6 2<br>2 2 2<br>2 2 6 | Bergamot<br>Lemon<br>Sweet Orange<br>Petitgrain Grasse<br>Lavender | Etc. |

My advice is to use the following procedure: on the basis of the listed accords, one will choose four standard raw materials selected from those printed in italics, in the table giving the main constituents of colognes. Formulations comprising the four products elected will be established. For example, as follows:
(a)

| | |
|---|---|
| 6 2 2 2 | Bergamot |
| 2 6 2 2 | Lemon |
| 2 2 6 2 | Sweet Orange |
| 2 2 2 6 | Neroli bigarade petals or Petitgrain (Grasse) |

It is understood that the above ratios of components are given only for illustrative purposes, and these may be modified as desired. These various combinations will form a number of valuable compositions that can be used as basis for good Cologne formulations.

To the above accord (a), formed from four products, will be added another conventional cologne component such as lavender, the formula (b) (see chart below) being thus obtained.

In this manner, one will obtain interesting accords constituting most satisfactory conventional type colognes that could be used as such.

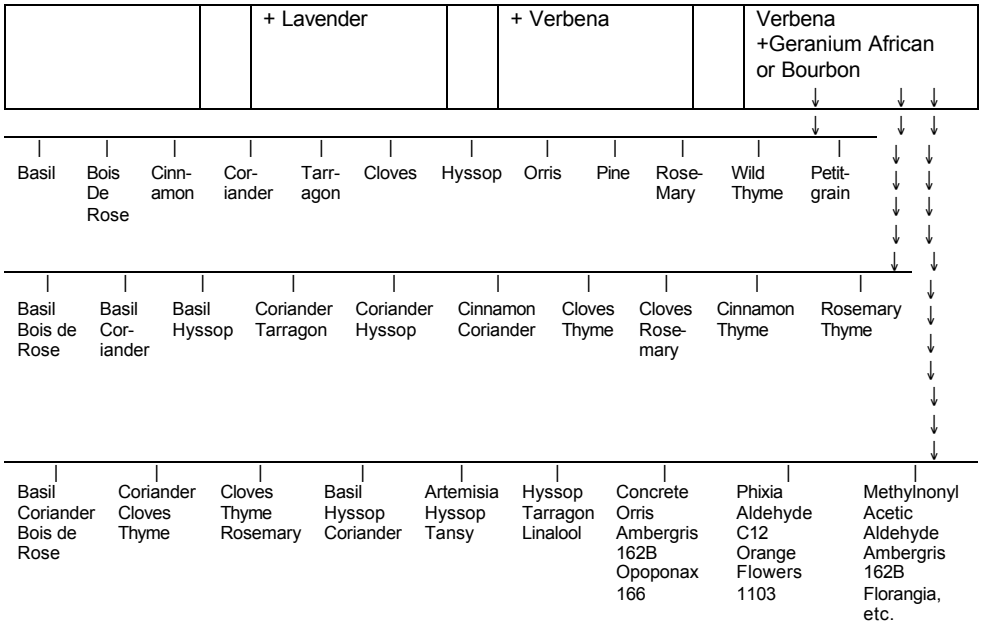
After a given accord is selected, with suitable ratios of components, any additional constituents such as verbena may be used, resulting in a new formulation (c).

As previously stated, suitable ratios between constituents will be selected for the formulation of the latter accord, and a seventh conventional cologne component such as geranium African or Bourbon, for example, will be added. On the basis of this new formulation (d) one will obtain novel combinations by using varied ratios between components. A number of valuable compositions will result from each of the (a), (b), (c) and (d) formulations, although no strict rule is involved in the method outlined above. If desired, small amounts of artificial musks such as musk ketone, musk ambrette, hibiscolide, Lactone MC15 and the like will be added to the compositions.

In addition to conventional type colognes, there are also fancy type so-called Imperial, Russian, Royal, Amber colognes that are merely conventional colognes modified with additional components such as those listed below.

For a better understanding of the method used, a general scheme is given to show how, starting from formulation (d.), many modifications of one and the same formula can be obtained.

| | | | | | | |
|---|---|---|---|---|---|---|
| (a)<br>Bergamot<br>Lemon<br>Sweet Orange<br>Neroli bigarade<br>or<br>Petitgrain fr.<br>Grasse | → | (b)<br>Bergamot<br>Lemon<br>Sweet Orange<br>Neroli bigarade<br>or<br>Petitgrain fr.<br>Grasse | → | (c)<br>Bergamot<br>Lemon<br>Sweet Orange<br>Neroli bigarade<br>or<br>Petitgrain fr.<br>Grasse | → | (d)<br>Bergamot<br>Lemon<br>Sweet Orange<br>Neroli bigarade<br>or<br>Petitgrain fr.<br>Grasse |


+ Lavender
+ Verbena
Verbena
+Geranium African
or Bourbon
Basil
Bois De Rose
Cinn-amon
Cor-iander
Tarr-agon
Cloves
Hyssop
Orris
Pine
Rose-Mary
Wild Thyme
Petit-grain
Basil Bois de Rose
Basil Cor-iander
Basil Hyssop
Coriander Tarragon
Coriander Hyssop
Cinnamon Coriander
Cloves Thyme
Cloves Rose-mary
Cinnamon Thyme
Rosemary Thyme
Basil Coriander Bois de Rose
Coriander Cloves Thyme
Cloves Thyme Rosemary
Basil Hyssop Coriander
Artemisia Hyssop Tansy
Hyssop Tarragon Linalool
Concrete Orris Ambergris 162B Opoponax 166
Phixia Aldehyde C12 Orange Flowers 1103
Methylnonyl Acetic Aldehyde Ambergris 162B Florangia, etc.

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# A method of creation and perfumery
## By Jean Carles (Dec.1961)

**This series of articles was published in the 1968 yearbook issue of the publication "Soap, Perfumery & Cosmetics" and is available at many libraries across the U.S. To find a library near you, search on www.worldcat.org.**

### Floral Notes

Generally, the same rules should be observed in the formulation of floral notes as those previously set forth in relation to chypre type notes, with some specific modifications.

The selection of the raw materials providing the characteristic odor of the notes previously discussed was a simple matter, because all belong to the class of slow evaporatoring base products and make it possible to establish well-balanced basic accords from which all fancy variations are possible.

When formulating floral type accords, one has to cope with the fact that the base products one may choose from are sorely lacking in materials exhibiting the characteristic aroma of the flower such as Jasmine, Rose, Carnation, Lilac, Tuberose,etc.... it is desired to compound. In order to create a floral type accord, one must make simultaneous use of base notes, modifiers and top notes, in other words, create right away a complete perfume formulation.

With Jasmin type accords, for example, one should use in association benzyl acetate as top note, with ylang as modifier, and Amyl Cinnamic Aldehyde as base note, or also indolene or benzyl salicylate, which are likewise base notes, to mention only the most important materials necessary for the formulation of a Jasmin type perfume.

From the following example of Jasmin type accord

3 6 3 benzyl acetate
3 3 6 ylang
6 3 3 Amyl Cinnamic Aldehyde

Several interesting, although very simple, Jasmins can be obtained by varying the ratios between constituents.

As previously indicated, when discussing chypre notes, the beginner in the art of perfumery will establish first, for each floral note, a table where the suitable raw materials will be tabulated according to their rate of evaporation; only then will he effect experiments with accords containing two, three, four or more products -- as shown in the table on the next page. (below)

### Some Experimental Jasmin Accords

| | | | |
|---|---|---|---|
| "Jasmin" | | "Jasmin" accords | |

| accords with two products | | with three products | |
|---|---|---|---|
| 9 8 7 6 5<br>1 2 3 4 5 | Benzyl Acetate<br>Argeol | 4 6 3 3<br>4 3 6 3<br>4 3 3 6 | Benzyl Acetate<br>Ylang Nossi-Be extra<br>Amylcinnamic aldehyde |
| | | | |
| 9 8 7 6 5<br>1 2 3 4 5 | Benzyl Acetate<br>Amylcinnamic aldehyde | 4 6 3 3<br>4 3 3 6<br>4 3 6 3 | Benzyl Acetate<br>Ylang Nossi-Be extra<br>Argeol |
| | | | |
| 9 8 7 6 5<br>1 2 3 4 5 | Benzyl Acetate<br>Ylang Nossi-Be extra | 4 6 3 3<br>4 3 3 6<br>4 3 6 3 | Benzyl Acetate<br>Ylang Nossi-Be extra<br>Indolene |
| | | | |
| | | 4 6 3 3<br>4 3 6 3<br>4 3 3 6 | Benzyl Acetate<br>Ylang Nossi-Be extra<br>Benzyl Salicylate |

| “Jasmin” accords with four products | |
|---|---|
| 4 7 3 3 3<br>4 3 7 3 3<br>4 3 3 7 3<br>4 3 3 3 7 | Benzyl Acetate<br>Ylang Nossi-Be extra<br>Amylcinnamic aldehyde<br>Benzyl Salicylate |
| | |
| 4 7 3 3 3<br>4 3 7 3 3<br>4 3 3 7 3<br>4 3 3 3 7 | Benzyl Acetate<br>Linalool<br>Ylang Nossi-Be extra<br>Amylcinnamic aldehyde |
| | |
| 4 7 3 3 3<br>4 3 3 7 3<br>4 3 7 3 3<br>4 3 3 3 7 | Benzyl Acetate<br>Ylang Nossi-Be extra<br>Argeol<br>Amylcinnamic aldehyde |

On olfactory examination of all such accords with 2, 3, 4, 5 or even 6 products, our young students will be pleasantly surprised at the results obtained, and will make unexpected findings. Thus, they will achieve quite satisfactory Jasmin, Rose, Carnation, and Tuberose type compounds with only four, or even as few as three components. As already indicated, the relative percentage of such components will be varied as desired when formulating such accords.

It is impossible, within the scope of the present paper, to consider one after the other all existing floral notes, or even the more common of these. The above "Jasmin's" are typically illustrative of the method advocated. The same procedure may be used for the formulation of each floral note.

However, before concluding this paper, we shall mention some "tricks of the trade", using for example two tuberose accords selected from innumerable studies on this aroma:

4 Aldehyde C18, 10% sol

6 Argeol, 10% sol.
2 Celery, 1% sol.

2 Aldehyde C18, 10% sol.
7 Argeol, 10% sol.
1 Celery, 1% sol.

It will be found that the above accord's the constitute an excellent starting skeletal formula for further study of a synthetic tuberose.

But why use celery in a tuberose formulation? The reason for this is as follows. When effecting olfactory studies on a given note, I always endeavor to discover in the ultimate stages of the evaporation of the product under investigation some similarity of odor with a naturally occurring material.

Thus, I have found that, on evaporation, celery called to mind first Tuberose, then Orris, etc.... hence, the feeling that this material could be used to reinforce the odor of other raw materials used in perfumery, and the pursuit of research that resulted, for example, in the finding that celery could be used successfully in tuberose formulations, that it reinforced the effect of Vetiver with which it blends perfectly. I consider celery one of the most remarkable long-lasting base products and one of the most valuable perfumery materials.

**Other Floral Accords**

In the course of my investigations, I made a similar findings with many other materials, and such findings resulted in very simple and highly useful formulations. Also, in the course of studies relating to potential associations of raw materials, I obtained identical and most interesting results with pairs of products whose odors were not in the least related to the aroma of specific essential oils.

Thus, the accord
1 Absolute Violet Leaves
4 Petitgrain fr. Paraguay

is suggestive of Clary Sage, while

1 Absolute Lavender
2 Absolute Violet Leaves

Is suggestive of Cucumber,

2 Neroli bigarade petals extra
2 Absolute Styrax Colorless

Is suggestive of Jonquil and

2 Absolute Styrax Colorless
2 Hydroxycitronellol, etc.

Suggests a Lilac type floral note. Such associations are inexhaustible.

These are only a few examples of the fascinating discoveries that can be made in the practice of our art and that are so numerous that an entire chapter should be devoted to them. They are vivid proof of how encouraging this type of research may be, although it may appear quite tedious to the uninitiated.